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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,345	11/27/2000	Jean-Pierre Ferray	MATR-0002-US	5978
21906	7590	06/08/2004	EXAMINER	
TROP PRUNER & HU, PC 8554 KATY FREEWAY SUITE 100 HOUSTON, TX 77024			LELE, TANMAY S	
			ART UNIT	PAPER NUMBER
			2684	

DATE MAILED: 06/08/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/723,345

Applicant(s)

FERRAY, JEAN-PIERRE

Examiner

Tanmay S Lele

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 27 January 2004 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1 –8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowdon (Lowdon, US Patent 6,073,019) in view of Harjula et al. (Harjula, WIPO, WO 98/35511) and Vaara (Vaara, US Patent No. 5,913,169).

Regarding claim 1, Lowdon teaches of a mobile communication system, comprising runs of loss cable disposed in succession along a zone of radio coverage and feeder means for feeding the cable runs from base stations of at least one cellular mobile communication network (as seen in Figure 1), wherein the feeder means comprise means for applying first radio

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frequency signals from a first base station of the cellular mobile communication network to a first cable run (column 1, lines 44 – 54; note that all fields, signals, and frequencies are all EM waves and thus synonymous with one another), means for applying second radio frequency signals from a second base station of the cellular mobile communication network to a second cable run (column 1, lines 44 – 54; note that all fields, signals, and frequencies are all EM waves and thus synonymous with one another), which is adjacent to the first run (as seen in Figure 1 and column 1, lines 44 – 54).

Lowdon does not specifically teach of means for applying to the first cable run at least part of the second radio frequency signals including said second beacon; said first radio frequency signals including a first beacon signal specific to a cell serviced by said first base station; or said second radio frequency signals including a second beacon signal specific to a cell serviced by said second base station.

In a related art dealing with handover in a rail environment, Harjula teaches of means for applying to the first cable run at least part of the second radio frequency signals (page 8, paragraph 1).

It would have been obvious to one skilled in the art at the time of invention to have combined Lowdon's underground mobile communication system with Harjula's frequency reuse, for the purpose of facilitating handover in a fast moving railway system, as taught by Harjula.

Lowdon in view of Harjula do not specifically teach of [means for applying to the first cable run at least part of the second radio frequency signals] including said second beacon; said first radio frequency signals including a first beacon signal specific to a cell serviced by said first base station; or said second radio frequency signals including a second beacon signal specific to

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a cell serviced by said second base station (note the brackets have been added for clarity in language and it is believed that these limitations have been addressed by the above cited art).

In a related art dealing with handover decisions, Vaara teaches of [means for applying to the first cable run at least part of the second radio frequency signals] including said second beacon (column 4, lines 19 –38; note mention of same signal in column 4, lines 22 –24); said first radio frequency signals including a first beacon signal specific to a cell serviced by said first base station (column 4, lines 19 –38; note mention of same signal in column 4, lines 22 –24); or said second radio frequency signals including a second beacon signal specific to a cell serviced by said second base station (column 4, lines 19 –38; note mention of same signal in column 4, lines 22 –24).

It would have been obvious to one skilled in the art at the time of invention to have included into Lowdon and Harjula's underground mobile communication system, Vaara's identification system, for the purposes of proper synchronization necessary for proper handover, as taught by Vaara.

Regarding claim 2, Lowdon in view of Harjula and Vaara, teach all the claimed limitations as recited in claim 1. Lowdon further teaches of wherein said part of the second radio frequency signals is applied to the first cable run with a given attenuation relative to the first radio frequency signals as applied to the first cable run (as seen in Figures 1 and 2 and starting column 2, line 64 and ending column 3, line 8).

Regarding claim 3, Lowdon in view of Harjula and Vaara teach all the all the claimed limitations as recited in claim 1. Lowdon further teaches of wherein the feeder means further have means for applying at least part of the first radio frequency signals to the second cable run

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with a given attenuation relative to the second radio frequency signals as applied to the second cable run (as seen in Figures 1 and 2 starting column 2, line 64 and ending column 3, line 8; note the directions A and B).

Regarding claim 4, Lowdon in view of Harjula and Vaara teach all the claimed limitations as recited in claim 1. Harjula further teaches of wherein all the second radio frequency signals are applied to the first cable run (page 8, paragraph 1; note that this is obvious as the same frequency channel is reserved for the next BTS).

Regarding claim 5, Lowdon in view of Harjula and Vaara teach all the claimed limitations as recited in claim 1. Vaara further teaches of wherein the part of the second radio frequency signals applied to the first cable run is limited to the second beacon signal (column 4, lines 19 –38; note mention of same BCCH in column 4, lines 22 –24 which includes the BSIC).

Regarding claim 6, Lowdon in view of Harjula and Vaara teach all the claimed limitations as recited in claim 1. Lowdon further teaches that wherein the feeder means are set up to apply the radio frequency signals from at least one of the first and second base stations to several adjacent cable runs (as seen in Figure 1 with the over lap in cable runs).

Regarding claim 7, Lowdon in view of Harjula and Vaara teach all the claimed limitations as recited in claim 1. Harjula further teaches of further having collection means to collect radio signals picked up by the runs of loss cable (starting page 7, paragraph 6 and ending page 8; note that the cables serve as antennas and thus both radiate and receive by reciprocity and thus are obviously collection means), wherein the collection means have means for applying third radio frequency signals from the first cable run to the first base station and means for applying at least part of the third radio frequency signals to the second base station (page 8,

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paragraph 1 and page 9, paragraphs 1 – 3; note the system allows for multiple mobiles and thus third, fourth, ect signals are obvious as well as their transmission and reception on multiple cables as described by Harjula).

Regarding claim 8, Lowdon in view of Harjula and Vaara teach all the claimed limitations as recited in claim 1. Lowdon and Harjula further teach that wherein the runs of loss cable extend through tunnels (Lowdon: Figure 1 and column 2, lines 43 – 63 and Harjula: Figure 1 and paragraph 5) and Harjula further teaches wherein the feeder means are positioned outside the tunnels (page 11, paragraph 2).

Citation of Pertinent Prior Art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Inventor	Publication	Number	Disclosure
Chung et al.	US Patent	6,359,871	Cellular Communications Network
Lowdon	US Patent	5,974,326	System and Method for Channel Allocation in a Radio Telephone System for an Underground Railway
Stolarczyk	US Patent	4,777,652	Radio Communication System for Underground Mines
Jokinen et al.	US Patent	6,522,670	Method for identifying base stations of a time division cellular network in a mobile station and mobile station
Rappaport	<u>Wireless Communications</u> (Prentice Hall; 1996)	Pages 509 – 512	Broadcast, common, and dedicated channel structures; (BSIC in the SCH)

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanmay S Lele whose telephone number is (703) 305-3462. The examiner can normally be reached on 9 - 6:30 PM Monday – Thursdays and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A. Maung can be reached on (703) 308-7745. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

✓
Tanmay S Lele
Examiner
Art Unit 2684


NAY MAUNG
SUPERVISORY PATENT EXAMINER

tsl
May 24, 2004